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PATENT SPECIFICATION

Application Date: Jan. 27, 1928. No. 2665/28. **291,709**

Complete Accepted: June 7, 1928.

COMPLETE SPECIFICATION.

Apparatus for the Dustless Emptying of Receptacles Filled with Loose Material or the like into a Collecting Receptacle.

I, GRIFFITH BREWER, of the firm of Brewer & Son, Patent Agents, 39, Chancery Lane, London, W.C. 2, a subject of the King of Great Britain, do hereby declare the nature of this invention (a communication to me from abroad by Gustav Schulze, of Stolbergstrasse 41, Essen-Borbeck, Germany, a citizen of the German Republic) and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to apparatus for the dustless emptying of receptacles filled with loose material into a collecting receptacle. Appliances for this purpose are already known in which the means employed for closing the receptacle to be emptied cooperates with the means which closes the inlet to the collecting receptacle so that the means for closing the two receptacles are opened and closed simultaneously.

In the appliances already known the receptacle which is to be emptied is provided as a rule with a hinged cover formed integrally therewith. This however does not make an absolutely dustless emptying of the receptacle possible as the cover during the closing movement travels over a considerable distance with great speed and in doing so displaces a large volume of air, which sets up eddies in the air contained in the interior of the receptacle with the result that any dust that may be still contained in the receptacles will be blown out into the open air by the air set in motion by the cover. In order to overcome this disadvantage according to this invention the receptacle to be emptied is provided with two semi-circular covers with which stops are combined in such a way that when the receptacle is placed over the charging opening of the collecting receptacle these stops engage with members on this receptacle and open the lids or covers. In the subject matter of the present invention the covers of the receptacle to be emptied are already completely or almost completely enclosed in the inlet to the collecting receptacle and furthermore the covers, owing to their being divided, have only a short distance to traverse, so that the development of dust is prevented with certainty. An additional advantage of this type of construction consists in the fact that the inlet to the collecting receptacle may be of very much smaller dimensions than when receptacles are used which have only one (circular) cover which has to lie on the body of the vehicle while the receptacle is emptied into the interior thereof.

A constructional example of the subject matter of the invention is illustrated in the accompanying drawing as applied to a motor vehicle for carrying away dust.

Figure 1 is a side elevation of the motor vehicle, and on a larger scale.

Figure 2 is a side elevation of one of the receptacles to be emptied.

Figure 3 is a plan view of Figure 2.

Figure 4 is a portion of Figure 1 in vertical section.

Figure 5 is a section on the line 5—5 of Figure 4 looking from the right.

Figure 6 is a view corresponding to Figure 4 with the parts in another position and

Figure 7 is a section on the line 7—7 of Figure 6 looking in the direction of the arrow *x*.

In the collecting receptacle A, mounted on a motor vehicle, is mounted and rotates a conveyor screw a^1 (see Figures 4 and 6) which conveys the loose material fed to it into the receptacle A for its collection in the well known manner. The receptacles B which are to be emptied are provided with two semicircular lids b^1 for closing them which are pivoted thereto and which, when closed, touch each other in an axial plane of the receptacle. To each of the covers b^1 is rigidly attached a stop b^2 which is constructed in the form of a handle and which serves at the same time to pivotally connect the cover to the receptacle and projects laterally beyond the peripheral surface of the receptacle B. At right angles to the plane of separation of the closed covers b^1 is finally attached to each receptacle B a bolt b^3.

The casing a^2 of the conveyor screw a^1 carries a sheet metal charging hopper a^3, in which is mounted and rotates a bolt C. Mounted to rotate loosely on this

bolt is a casing D consisting of a section from a cylinder and so constructed that the centre of curvature of its cylindrical side d^1 lies on the axis of the bolt C and its side walls d^2 lie close against the side walls of the charging hopper a^3 (see Figure 5). The hopper a^3 has an inwardly curved side a^4 which is curved in suchwise that the side d^1 bears closely against it. The rocking movement of the casing D is limited by an angle iron d^4 affixed to the side d^1 and which in one terminal position of the casing (see Figure 4) bears against the side a^4 and in the other terminal position (see Figure 6) against an angle iron a^6 affixed to the collecting receptacle A. In the side walls d^2 are finally provided openings d^5 the width of which is slightly greater than the width of the stops b^2 on the vessel or receptacle B. In the position occupied by the parts in Figure 4 these openings coincide or register with corresponding openings a^5 (see Figures 5 and 6) in the side walls of the hopper or inlet a^3.

To the bolt C is rigidly connected a frame E which always lies close against the sides d^1 and d^2 of the casing D. This frame has a circular opening e^1 in it to close which two semicircular flaps or lids e^2 controlled by springs e^3 are provided. The springs e^3 tend to always hold the lids or flaps e^2 in the closed position (see Figures 4 and 5). In the bolt C are also mounted helical springs c^1 (see Figure 5) one end of which bears against the frame E and the other end thereof engages in the side walls of the hopper or inlet a^3. These springs tend to always hold the frame E in the position shown in Figure 4 in which it bears against a stop a^5 on the casing D and the angle iron d^4 on the side a^4. On the casing d is also provided another stop d^6, which determines a further terminal position of the frame E (see Figure 6). Finally there are also provided on the bolt C two open bearings F which are adapted to bear by extension f^1 against the casing a^2 of the conveyor screw.

To empty it the receptacle B is hung by means of its bolt b^3 in the open bearing F and then swung upwards (see Figure 4), so that its covers b^1 enter the opening e^1 in the frame E and its stops b^2 the openings a^5 and d^5 in the hopper a^3 and the sides d^2. At the same time the receptacle B bears by its upper edges b^4 projecting beyond the cover against the frame E. If therefore the receptacle B be pushed by the attendant against the collecting receptacle A the frame E will rock under the pressure of the receptacle against the pressure of the springs c^1 while at the same time the stops b^2 on the receptacle engage with the sides d^2 of the casing D so that on the further movement of the frame towards the receptacle A they will be rocked outwards and open the covers or lids b^1 (see particularly Figure 7). When this takes place the covers b^1 strike against the covers e^2 of the frame E and rock them against the action of their springs outwards. During the further course of its movement the frame E strikes against the stop d^6 and couples itself thereby to the casing D, so that now the frame E and the casing D continue their movement together as one until the casing D strikes by its angle iron d^4 against the stop a^6. In the course of this movement the contents of the receptacle B will be discharged into the conveyor screw a^2 and conveyed by the screw or worm a^1 into the collecting receptacle A. The open bearings F for the bolt b^3 follow the rocking movement of the receptacle B so that the bolt b^3 remains in engagement with the bearings F.

After it has been emptied the receptacle B is rocked back into its original position as shown in Figure 4. During the course of this movement the frame E strikes against the stop d^5 and takes the casing D along with it until the angle iron d^4 strikes against the side a^4 and ends the return movement of the parts. Towards the end of this movement the stops b^2 on the receptacle enter the openings d^5 and a^5 after which the springs e^3 come into action and close the covers e^2 and also the covers b^1 in contact therewith on the receptacle. It will be obvious that springs may also be provided on the covers b^1 which hold them in the closed position. Finally the receptacle B is rocked downwards in the bearings F and can then be removed.

When using the apparatus for carrying away dust the covers b^1 of the receptacle B may be so constructed that they form a truncated cone when closed. In this way rain water will be prevented from entering the plane of separation between the two covers.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. An apparatus for the dustless emptying of receptacles filled with loose material or the like into a collecting receptacle characterised by the fact that the receptacle B to be emptied is provided with two semicircular covers b^1 with which stops b^2 are combined in suchwise that when the receptacle is placed on the inlet or charging opening a^1 of the collecting receptacle A they engage with members b^2

on this receptacle and open the covers b^1.

2. An apparatus according to Claim 1, characterised by the fact that the inlet or charging opening e^1 is arranged in a frame E controlled by springs and pivotally mounted on the collecting receptacle A and against which the receptacle B can support itself and which together with the receptacle rocks in to a position (see Figure 6) in which the receptacle automatically empties itself.

3. An apparatus according to Claims 1 and 2, characterised by the fact that the frame E is provided with a spring controlled cover e^2 which closes the inlet or charging opening e^1 which cover when the receptacle B is brought into the discharging position (see Figure 6) is positively opened by the covers b^1 of the receptacle B and closed on the return of the receptacle B and the frame E to their original positions (see Figure 4) by its spring e^3 and at the same time closes the cover b^1 of the receptacle B.

4. An apparatus according to Claim 3, characterised by the fact that the means for closing the inlet or charging opening e^1 consists of two semicircular parts e^2.

5. An apparatus according to Claims 1 and 2, characterised by the fact that the frame e is mounted to rock in a casing D which itself simultaneously is mounted to rock coaxially with the frame on the collecting receptacle A and has members d^5, d^6) which are capable of coupling the casing D to the frame E.

6. An apparatus according to Claim 5, characterised by the fact that the casing D has a stop d^4 which fixes the terminal positions of the [illegible]g and therefore those of the fr[illegible] relatively to the collecting receptacle A.

7. A receptacle according to Claims 1 and 2, with a bolt for hanging the receptacle on to the collecting receptacle, characterised by the fact that open bearings F adapted to be rotated about the axis of the bolt E are provided on the collecting receptacle for this bolt b^3.

8. A receptacle according to Claim 1, characterised by the fact that the covers b^1 of the receptacle B form a truncated cone when closed.

Dated this 27th day of January, 1928.

BREWER & SON.

33, Chancery Lane, London.

Patent Agents for the Applicant.

291,709 COMPLETE SPECIFICATION

Fig.1.

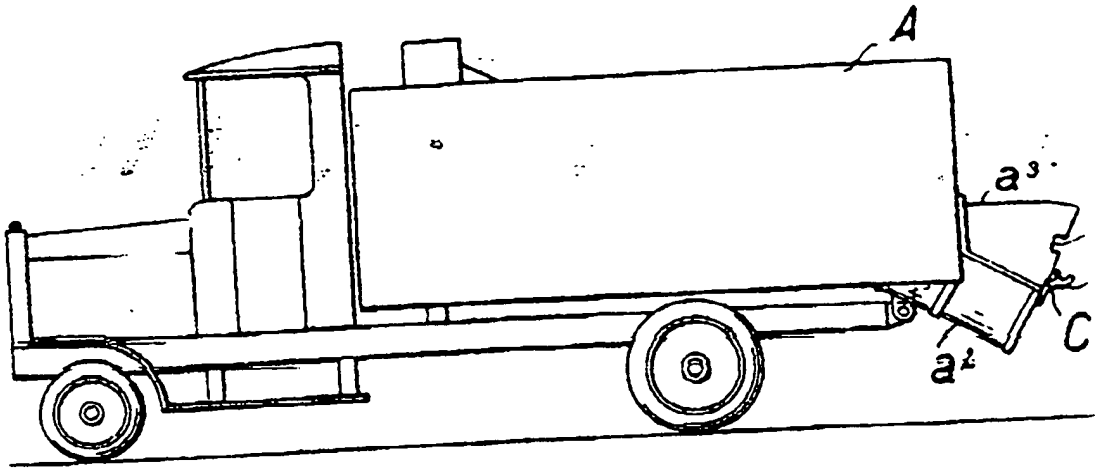


Fig.2.

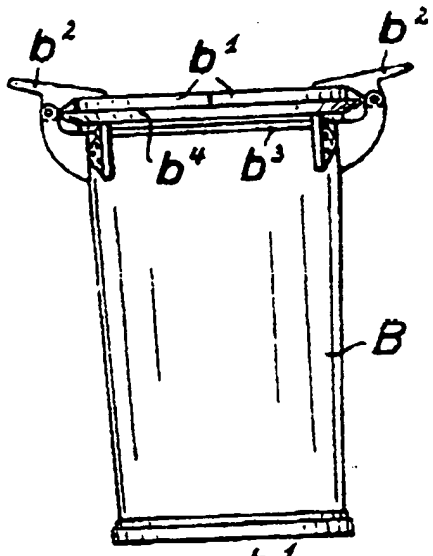
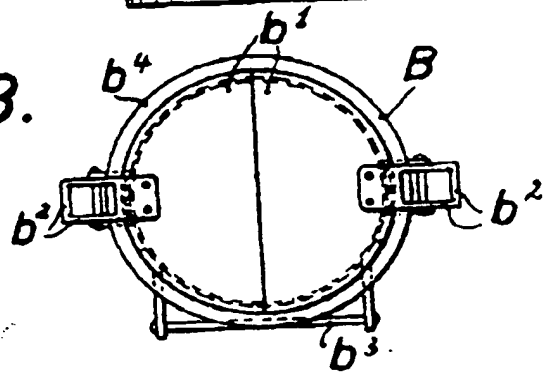


Fig.3.



[This Drawing is a reproduction of the Original on a reduced scale.]

3 SHEETS

SHEET 1

SHEET 2

Fig.4.

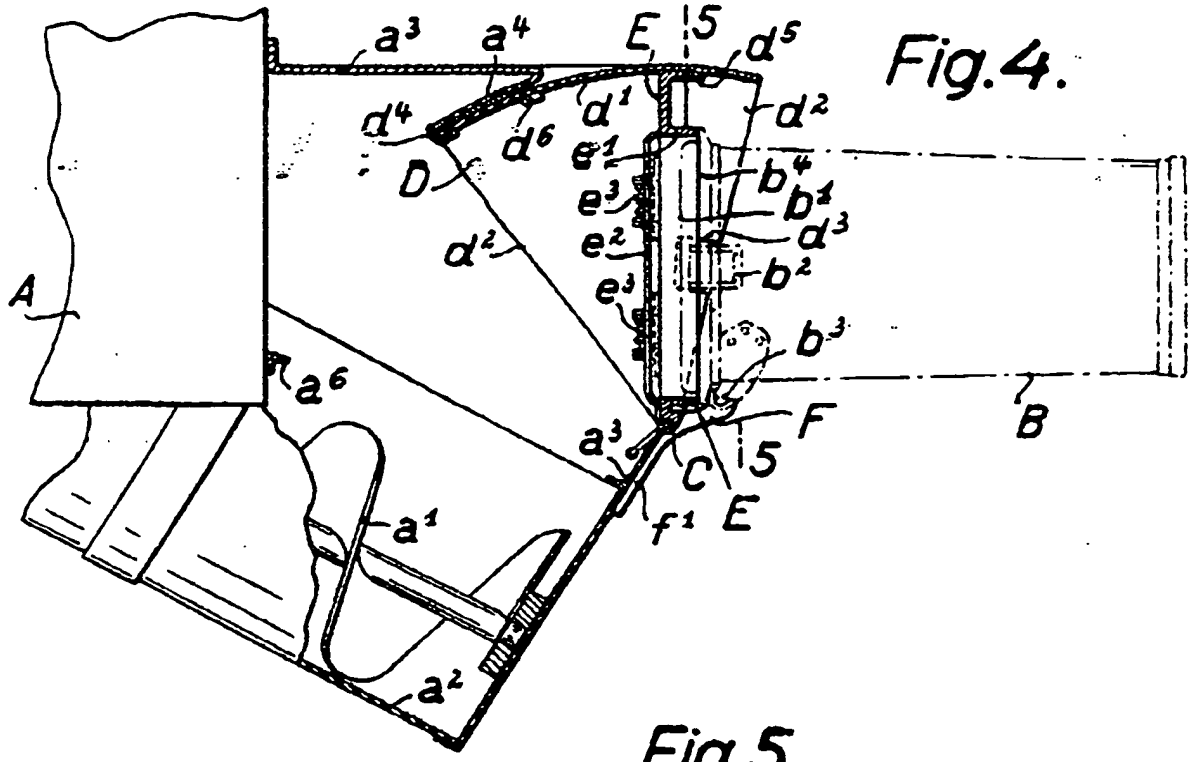
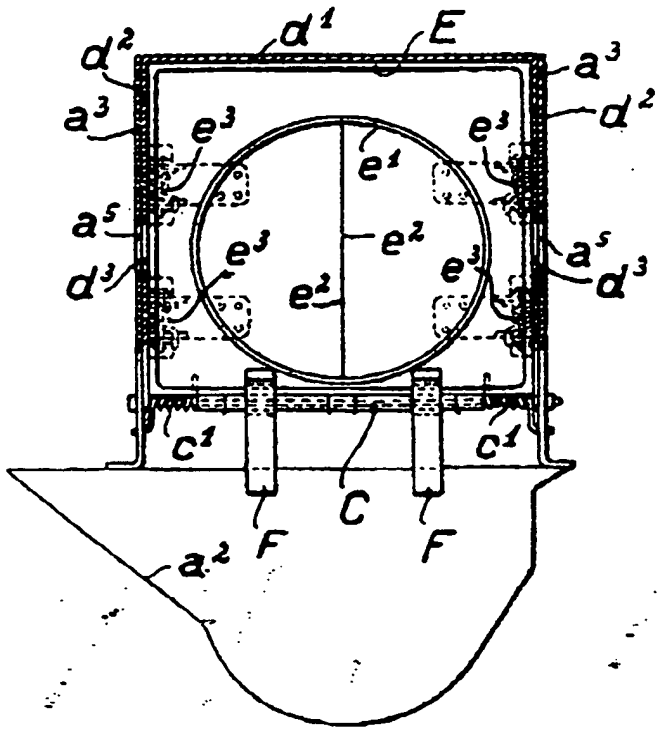


Fig.5.



291,709 COMPLETE SPECIFICATION

3 SHEETS
SHEET 3

Fig.6.

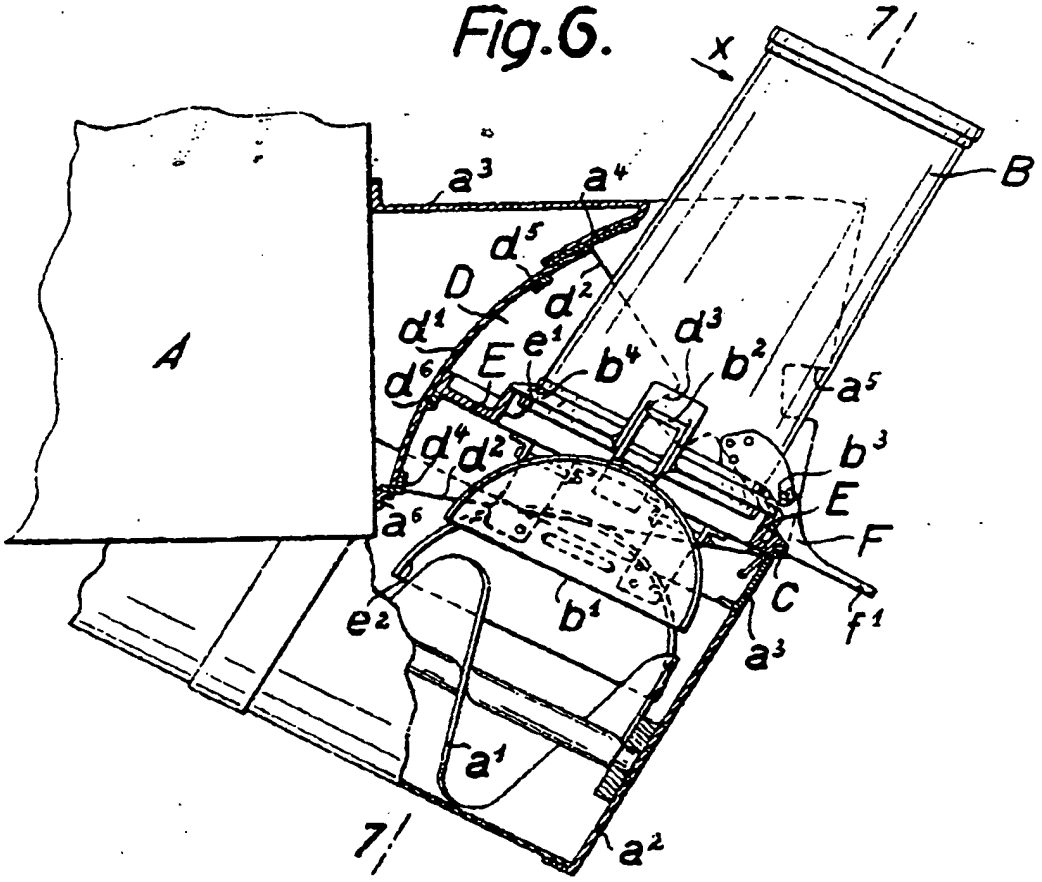
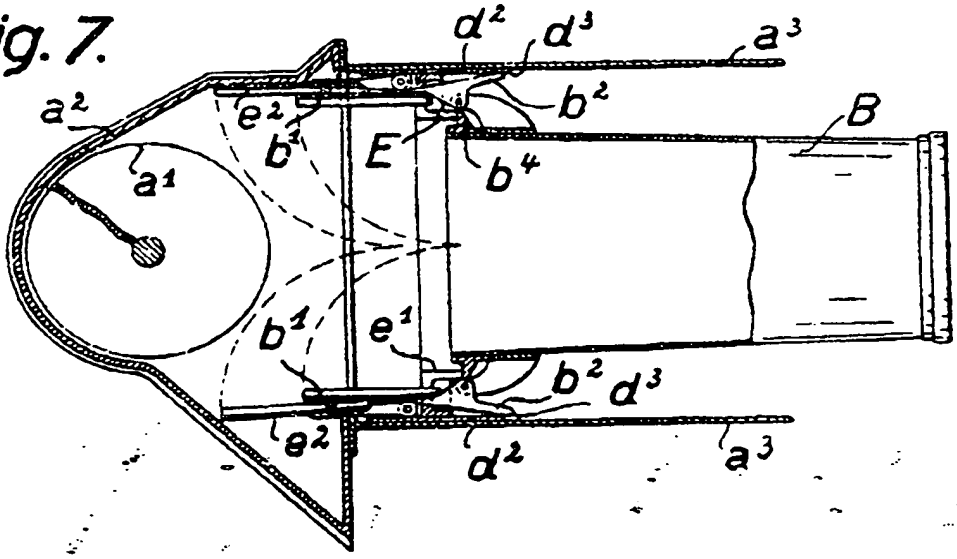


Fig. 7.



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